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NOTES ON A FEW FISHES FROM THE MOSQUITO COAST OF NICARAGUA.

BY HENRY W. FOWLER.

A few fishes have recently been received at the Academy of Natural Sciences of Philadelphia from the Rev. William H. Fluck. They were collected at Waûnta Haûlover, which is on the Mosquito coast or Atlantic seaboard of Nicaragua. Though none are new, they prove of interest on account of the locality.

SILURIDÆ.

FELICHTHYS Swainson.

1839. Nat. Hist. Fish. Amph. Rep., II, p. 305.

Type *F* [*elichthys*] *filamentosus* Swainson, *l. c.* Based on *Silurus bagre* Bloch, Ichthyologie, IV, Pt. 11, 1797, p. 19, Pl. 365. "Les grand rivières du Brésil et de l'Amerique septentrionale." (Coll. M. de Burgsdorff Conseiller.) [Not of Linnæus.]

1. *Felichthys marinus* (Mitchill).

1815. *Silurus marinus* Mitchill, Trans. Lit. Philos. Soc. New York, I, p. 433.
"New York. Taken June 30th, 1814."

Head $3\frac{4}{5}$; depth $4\frac{4}{5}$; D. I, 7; A. VIII, 16; P. I, 13; V. I, 5; width of head $1\frac{1}{4}$ in its length; depth of head, at posterior margin of the opercle, $1\frac{2}{5}$; snout $2\frac{5}{8}$; eye 5; width of mouth 2; interorbital space $1\frac{2}{3}$; internasal space 3; base of the dorsal $2\frac{3}{7}$; dorsal spine $1\frac{1}{5}$; least depth of caudal peduncle $3\frac{3}{8}$; base of anal $1\frac{2}{3}$; first branched anal ray $1\frac{3}{4}$; ventral $1\frac{3}{4}$.

Body rather long, depressed at first, then compressed after the head, and the greatest depth at the origin of the dorsal fin. Caudal peduncle compressed, and its least depth about half its length, measured between the posterior base of the adipose dorsal, and the base of the caudal.

Head broad, depressed, more or less flattened below, and rising convexly above, especially to the dorsal fin. Upper profile of the head a little convex above the eye in front. Occipital buckler solid, its width in front about equal to its length. Snout broad, a little rounded when viewed from above, and projecting a little beyond the mandible. Eye lateral, rather large, and its posterior margin about midway in the length of the head, viewed laterally. Mouth broad, rounded, and with

rather thin lips. Teeth minute, and in rather narrow bands in the jaws, and on the vomer and palatines. Tongue thick, broad, rounded, and free in front. Nostrils close together, the anterior circular, directed forward just above the lip, and the posterior elongate with a small flap. Interorbital space convexly elevated, with a median depression giving place to the fontanelle. The fontanelle does not extend beyond the eyes, but runs back to the occipital process as a narrow median groove. Maxillary barbels broad, flattened, and reaching to the anus. Mental barbels short, two in number, and reaching a little beyond the gill-membrane where it crosses the isthmus.

Gill-opening extending forward nearly opposite the posterior margin of the eye.

Peritoneum pale.

Anus about the last third in the space between the origin of the ventral and that of the anal.

Skin smooth, the top of the head posteriorly, and the occipital buckler rather rugose. Humeral process smooth. Lateral line with many rather long straight and obliquely vertical branches running out above and below. The lateral line itself is continued well out on the basal portion of the caudal.

Origin of the dorsal nearer the tip of the snout than the origin of the anal, the spine straight, with a rugose edge in front becoming barbed above, and giving place above to a long compressed broad filament that reaches near the base of the caudal. Dorsal rays graduated from the first, which is much longer than the spine, to the last, which is a little over a third the length of the spine. Adipose dorsal much higher than its base, and inserted much nearer the base of the caudal than the base of the last dorsal ray. Anal with a slightly concave margin, the first developed ray the highest, and the origin much nearer the base of the caudal than the origin of the dorsal. Pectoral with a long compressed spine, rugose along the edge at first, and both edges barbed distally. When depressed the spine reaches three-fourths the distance to the ventral, and its extremity gives place to a long compressed filament reaching the origin of the anal. First pectoral ray longer than the spine, and the others graduated to the last which is about a fourth the length of the spine. Ventral broad, rounded, the spine more or less flexible, and reaching the anal fin. Caudal large deeply forked, and the lobes long, rather slender and pointed.

Color in alcohol grayish above, white below. Lower side with crowded gray dots. The outer lower surface of the pectoral with

crowded gray dots. On the outer portion of the anal they are fewer. Ventral with only a few gray dots above. Upper edge of the maxillary barbels with gray dots. Lips whitish.

Length $8\frac{1}{2}$ inches.

One example. This is evidently the young of *marinus*, though I have never seen any young examples before. It agrees with adult and rather large examples from the New Jersey coast.

HÆMULIDÆ.

CONODON Cuvier.

1830. Hist. Nat. Poiss., V, p. 116.

Type *Conodon antillanus* Cuvier. l. c. "Jamaïque." (Coll. M. Broussonnet.) [= *plumieri*.]

2. *Conodon plumieri* (Bloch).

1797. *Sciæna plumieri* Bloch, Ichthyologie, III, Pt. 9, p. 57, Pl. 306. "Antilles."

Head 3; depth $3\frac{1}{4}$; D. XII, 12; A. III, 7; scales 52 in the lateral line to the base of the caudal; 6 scales between the origin of the dorsal and the lateral line in a vertical series, and 12 between the latter and the origin of the anal; fourth dorsal spine $1\frac{7}{8}$ in the head; second dorsal ray $2\frac{3}{4}$?; pectoral $1\frac{1}{2}$; snout $3\frac{1}{2}$ in the head, measured from the tip of the upper jaw; eye $4\frac{1}{4}$; maxillary $2\frac{7}{8}$; interorbital space 5.

Back elevated and compressed, the greatest depth at the base of the second dorsal spine. Least depth of the caudal peduncle one and two-thirds in its length.

Upper profile of the head a little convex. Snout broad, convex, with the upper jaw projecting, and the upper profile a little convex. Eye high, impinging on the upper profile of the head, and its posterior margin about midway in the length of the same. Preorbital margin undulate. Maxillary reaching opposite the first fifth of the eye, and its distal expanded portion a little less than half. Lips thick and fleshy. Bands of minute teeth in the jaws, with $\frac{3}{8}$ - $\frac{3}{8}$ large conic canines in the front of each jaw forming an outer series. Tongue broad, round, and free in front. Nostrils large, close together at the front of the eye, circular, and the posterior about half the size of the anterior. Interorbital space flattened. Margin of the preopercle with sparse short serrations, ending in a spine below, and its lower edge with a series of short spines directed forward.

Gill-opening extending about opposite the posterior fourth of the eye. Gill-rakers 6+16, pointed, more or less even, and a little shorter

than the filaments, which are a little less than half the eye. Pseudo-branchiæ rather short.

Peritoneum pale.

Scales of more or less even size, and finely ciliated. Vertical fins mostly scaly. Small scales crowded at the humeral region, at the base of the pectoral, and out on the basal portion of the fin. A flap composed of a few small scales at the axil of the pectoral. A few pointed scales at the base of the ventral, but not free. Lateral line nearly concurrent with the dorsal profile, composed of simple tubes, and extending well out on the caudal basally.

Origin of the dorsal inserted well behind that of the pectoral, the spines graduated to the fourth which is the longest, the first a little longer than eleventh, and the twelfth about equal to the second. Origin of the soft dorsal about midway between that of the spinous dorsal and the base of the caudal, and the anterior rays the longest. Spinous anal inserted a trifle behind the origin of the soft dorsal, the second spine the longest, much longer than the first or longest ray, and the base of the rayed fin a trifle over half its height. Pectoral pointed, reaching about three-quarters of the distance to the anal. Ventral inserted behind the pectoral, reaching about three-quarters of the distance to the anus, and the spine about two-thirds the length of the fin.

Color in alcohol brown above, pale beneath. About eight vertical brown bands or bars along the side of the body, extending till opposite the base of the pectoral.

Length $6\frac{11}{16}$ inches.

One example.

I do not accept *Perca nobilis* Linnæus¹ as the earliest available name for this species, as he states D. $\frac{1}{2}$, A. $\frac{3}{10}$! MM. Jordan and Feslar contend that it is probably intended for this species, though they admit that there is less doubt about the name *plumieri*.²

CICHLIDÆ.

HEROS Heckel.

1841. Zool. Abhand. Annel. Wien. Mus. Nat., 1841, p. 362.

Type *Heros severus* Heckel, l. c. "Marabitanas im Rio-negro." (Coll. M. Natterer.)

3. *Heros urophthalmus* Günther.

1862. *Heros urophthalmus* Günther, Cat. Fish. Brit. Mus., IV, p. 291. "Lake Peten." [Guatemala.] (Coll. MM. Salvin and Godman.)

Head $2\frac{1}{2}$; depth $2\frac{1}{4}$; D. XVI, 11; A. VI, 9; scales 30 in a lateral

¹ *Syst. Nat.*, Ed. X, I, 1758, p. 291.

² *Rep. U. S. Fish. Comm.*, XVII 1893, p. 488.

series to the base of the caudal; 5 scales in an oblique series back from the origin of the spinous dorsal to the lateral line, and 11 between the latter and the origin of the anal; fifth dorsal ray $1\frac{6}{7}$ in the head; sixth anal spine $2\frac{1}{2}$; fifth dorsal ray $1\frac{5}{8}$; caudal $1\frac{1}{4}$; pectoral $1\frac{1}{2}$; ventral $1\frac{2}{3}$; least depth of caudal peduncle $2\frac{2}{3}$; snout $2\frac{2}{3}$ in the head, measured from the tip of the upper jaw; eye $4\frac{2}{3}$; maxillary $3\frac{1}{10}$; interorbital space $3\frac{1}{3}$; width of preorbital 5.

One example, $5\frac{3}{16}$ inches in length. It is more slender than the examples examined by MM. Evermann and Goldsborough,³ and the black caudal spot at the bases of the upper caudal rays is very distinct. There is also a certain amount of dusky about the bases of the vertical fins, and the outer anterior portion of the ventral.

TETRAODONTIDÆ.

4. *Cheilichthys testudineus* (Linnæus).

Four small examples, the largest $3\frac{5}{8}$ inches long. They agree with examples from Porto Rico. There are a number of rather large dark spots on the flank, but not so numerous as in the adult.

SOLEIDÆ.

BAIOSTOMA Bean.

1882. In Goode and Bean, Proc. U. S. Nat. Mus., V, p. 415.

Type *Baiostoma branchialis* Bean, l. c. "Appalachicola Bay, South Florida." (Coll. M. Silas Stearns. Nos. 26,605, 30,463, U. S. Nat. Mus.)

This group is given generic rank on account of the presence of small pectoral fins, developed at least on the right side. In *Achirus* they are wholly wanting.

Grammichthys Kaup is hardly available as his type, *Pleuronectes lineatus* Linnæus, appears to be of the Ed. XII, *Syst. Nat.*

5. *Baiostoma lineata* (Linnæus).

1758. [*Pleuronectes*] *lineatus* Linnæus, *Syst. Nat.*, Ed. X, p. 268. "America." Based on *Pleuronectes* 1. *Fuscus subrotund.*, etc. Browne, *Civ. Nat. Hist. Jam.*, III, 1756, p. 445. [Jamaica.]

D. 53; A. 40; scales 76 in a lateral series between the gill-opening and the base of the caudal. Pectoral well developed on the right side with five rays.

One example, $2\frac{5}{8}$ inches in length.

³ *Bull. U. S. Fish Comm.*, 1902, p. 157.